# Automated Passenger Boarding Kiosk

**Problem Definition:**

Passengers when boarding flights face challenges when individuals would have to check their identity cards and match with their boarding passes and faces. And this stalls the process so I am going to build an automated passenger boarding kiosk using Azure cognitive services that will assist some of the pre-flights boarding procedures. Variety of different computer vision processes such as authentication and text extraction will be done in this kiosk.

**Objectives:**

- Identity validation using video from kiosk, id card and boarding pass information
- Flight validation using boarding pass
- Boarding kiosk experience using a video from kiosk
- Lighter detection in carry-on baggage using lighter images

**Dataset**:

- 30 seconds video from kiosk: For Face picture, Sentiment, Emotion
- Boarding pass: For First Name, Last Name, Seat No, Date, Flight No, Origin & Destination
- Driving Licence ID card: For First Name, Last Name, Date of Birth, Face picture, Sex
- Lighter Images: To test lighter detection in carry-on baggage

**Solution**:

I. Text Data Extraction -> Form Recognizer -> Boarding pass , Digital ID : Extract text within these two input data
II. Face Data Extraction -> Face API -> Digital ID , Video from kiosk : Extract human face within these two input data for authentication purposes
III. Object Detection -> Custom Vision -> Lighter images : Build a model to detect lighter in carry-on baggage

**Model metrics and evaluation:**

- For model evaluation: different metrics such as recall, and precision will be calculated for models .
- For DOB validation: extracted document from digital ID & boarding pass
- For Person validation: picture extracted from 30 seconds video & digital ID
- For Name validation : extracted information form digital ID & boarding pass
- For carry on baggage validation : extracted picture from carry on baggage